

Remediation Summary and Proposed Closure Strategy

New McKee Junction Sump & New McKee Junction Historical

Plains SRS No. 2015-175

NMOCD Ref. No. 1RP-3841

Lea County, New Mexico

Unit Letter "K", Section 29, Township 20 South, Range 38 East

Latitude 32.54213° / Longitude -103.17194°

March 22, 2016

Terracon Project No. AR157468



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Plains SRS 2015-175 ■ Terracon Project No. AR157468

INTRODUCTION

This *Remediation Summary and Proposed Closure Strategy* has been prepared in reference to the Plains' New McKee Jct. Sump environmental remediation site. The initial Release Notification and Corrective Action (Form C-141) indicates failure of a check valve caused an on-site sump to overflow, resulting in the release of approximately 40 barrels (bbls) of crude oil. The crude oil release affected an area measuring approximately 30 feet (ft) by 60 ft within the facility the flowed west affecting an area within the adjacent pasture measuring approximately 60 ft by 100 ft. The remediation site is located in Unit Letter "K", Sec. 29, Township 20 South, Range 38 East on land owned by the Bureau of Land Management (BLM). The GPS coordinates of the release site are N 32.54213°, W 103.17194°. The estimated depth to groundwater at the release site is approximately 60 ft below grade surface (bgs).

REMEDICATION AND CONFIRMATION SAMPLING ACTIVITIES

On September 2, 2015, excavation activities commenced at the release site. Impacted soil within the affected pasture to the west of the station was excavated until laboratory analytical results from confirmation soil samples indicated total petroleum hydrocarbon (TPH) and benzene, toluene, ethylbenzene, and total xylene (BTEX) concentrations were less than NMOCD Regulatory Remediation Action Levels established for the site. During the excavation of impacted soil within the facility boundaries, historical soil impacts were discovered beneath and adjacent to facility piping. Impacted soil was excavated to the maximum extent practicable, given the proximity to active pipelines and the congested nature of the facility. Excavated soils associated with remedial assessment activities for the duration of the project were profiled and transported to J & L Landfarm Inc. (Permit No. NM1-023).

On October 16, 2015, upon receiving laboratory analytical results from confirmation soil samples, Plain's requested NMOCD and BLM permission to backfill the remediated area within the affected pasture with locally-purchased material, and temporarily backfill a portion of the excavated area within the facility boundaries to facilitate the installation of a new pipeline at the facility.

On October 22, 2015, upon receiving NMOCD and BLM approval, environmental personnel began backfilling the excavated area within the affected pasture with locally-purchased material. In addition, excavated areas within the facility boundaries were backfilled with locally purchased caliche and compacted to meet the needs of the pipeline installation.

On December 1, 2015, Plains personnel completed the installation of the DOT pipeline and associated valve settings.

Beginning December 10, 2015, an environmental investigation was conducted at the release site in an effort to further evaluate historical soil impacts discovered beneath and adjacent to facility piping during remediation activities. A delineation trench (DT-1) was advanced proximate to the inferred center of the area characterized by the historical soil impacts. During the advancement of the delineation trench, soil samples were collected from within the 10.5 to

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Remediation Summary and Proposed Closure Strategy

New McKee Junction Historical ■ Lea County, New Mexico

Plains SRS 2015-175 ■ Terracon Project No. AR157468



11 ft, 12.5 to 13 ft, 15.5 to 16 ft and 17.5 to 18 ft bgs intervals and submitted to the laboratory for analysis of TPH and BTEX.

Laboratory analytical results indicated TPH concentrations ranged from less than the laboratory method detection limit (MDL) for the soil sample collected from the 17.5 to 18 ft interval to 4,800 milligrams per kilogram (mg/kg) for the soil sample collected from the 12.5 to 13 ft interval. Analytical results indicated benzene concentrations ranged from less than the laboratory MDL for the soil samples collected from the 15.5 to 16 ft and 17.5 to 18 ft intervals to 0.562 mg/kg for the soil sample collected at the 10.5 to 11 ft interval. Total BTEX concentrations ranged from less than the laboratory MDL for the soil sample collected at the 17.5 to 18 ft intervals to 31.9 mg/kg for the soil sample collected from the 10.5 to 11 ft interval. Based on laboratory analytical results from the collected soil samples, it was determined that soil was not affected above NMOCD Regulatory Remediation Action Levels for TPH, benzene or total BTEX beyond 17.5 to 18 ft bgs.

On January 13, 2016, NMOCD and Plains representatives met to discuss historical soil impacts encountered at the site. During the meeting, it was determined additional horizontal delineation activities would be conducted in conjunction with a risk-based closure strategy.

On January 21, 2016, excavation activities resumed within the facility boundaries. A hydroexcavator and hand-shovels were used to excavate affected soil beneath and adjacent to pipelines within the facility. Impacted soil was excavated to the maximum extent practicable, given the proximity to active pipelines and the congested nature of the facility.

On January 25, 2016, Terracon collected four confirmation soil samples (Facility NSW, Facility SSW, Facility ESW and Facility Floor) from the excavated area characterized by the August 28, 2015, release and submitted them to the laboratory for analysis of TPH and BTEX. Laboratory analytical results indicated TPH and BTEX concentrations were less than the appropriate laboratory MDL in each of the submitted soil samples with the exception of soil sample Facility Floor, which exhibited a TPH concentration of 38.5 mg/kg. TPH and BTEX concentration were less than NMOCD Regulatory Remediation Action Levels in each of the submitted soil samples.

In addition, one test trench (South TT) and two (2) hand-augered soil bores (North SB and East SB) were advanced outside the facility in an effort to determine the horizontal extent of historical soil impacts discovered during remediation activities. During the advancement of the test trench and soil bores, soil samples were collected from the 4.5 to 5 ft and 9.5 to 10 ft intervals and submitted to the laboratory for analysis of TPH and BTEX. Laboratory analytical results indicate TPH and BTEX concentrations were less than the appropriate laboratory MDL in each of the submitted soil samples with the exception of soil sample North SB (9.5-10'), which exhibited a TPH concentration of 86.2 mg/kg. TPH and BTEX concentrations were less than NMOCD Regulatory Remediation Action Levels in each of the submitted soil samples.

SITE CLOSURE PROPOSAL

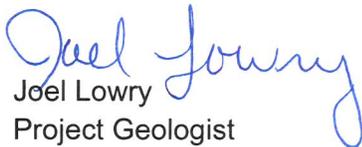
Based on the remediation activities conducted to date and the results of laboratory analysis from confirmation soil samples, Plains requests NMOCD and BLM permission to backfill the remaining excavated area in the southern portion of the remediation site with locally purchased material. Upon receiving NMOCD and BLM permission, the remaining excavated area in the southern portion of the remediation site will be backfilled with locally purchased material. Upon backfilling the remaining excavated area, a final C-141 will be prepared along with a *Remediation Summary and Soil Closure Request* summarizing remediation activities and laboratory analytical results from confirmation soil samples.

HISTORICAL SOIL IMPACTS

In accordance with the NMOCD, Plains will prepare an initial C-141 indicating the presence of historical soil impacts within the facility boundaries characterized by soil samples collected from test trench DT-1, South TT, North SB and East SB. Remediation of historical soil impacts will be conducted in accordance with the NMOCD and BLM upon time of abandonment (TOA). Plains maintains that excavating affected soil adjacent to and beneath facility piping and associated valve settings poses a risk to safety.

Sincerely,

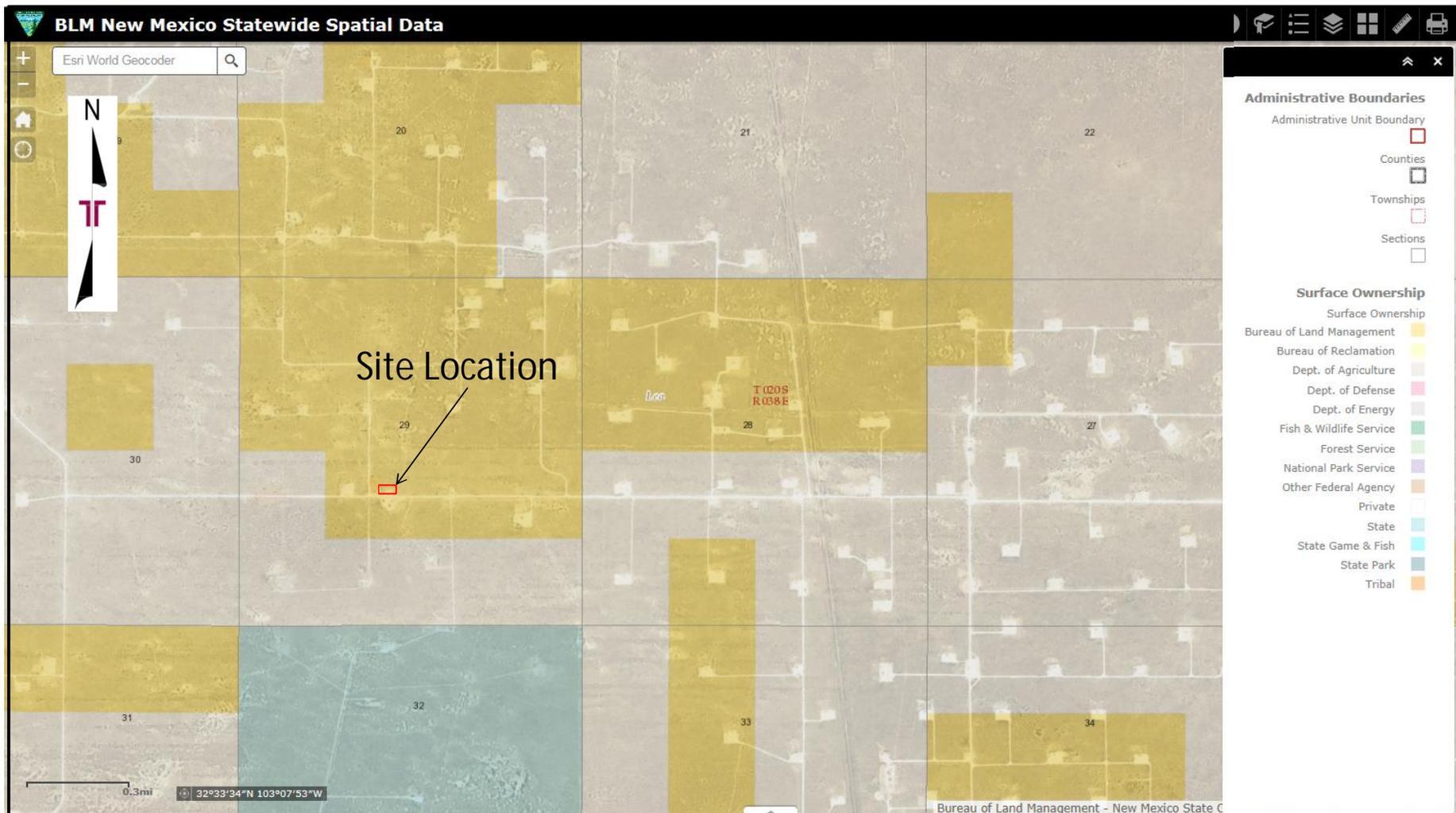
Terracon Consultants, Inc.


Joel Lowry
Project Geologist


Erin Loyd, P.G.
Senior Associate
Office Manager – Lubbock

Attachments:

- Figure 1 – Site Location Map
- Figure 2 – Site and Sample Location Map
- Figure 3 – Site and Sample Location Map – Facility
- Table 1 – Confirmation Soil Sample Analytical Results – TPH, BTEX, and Chlorides
- Photographic Log

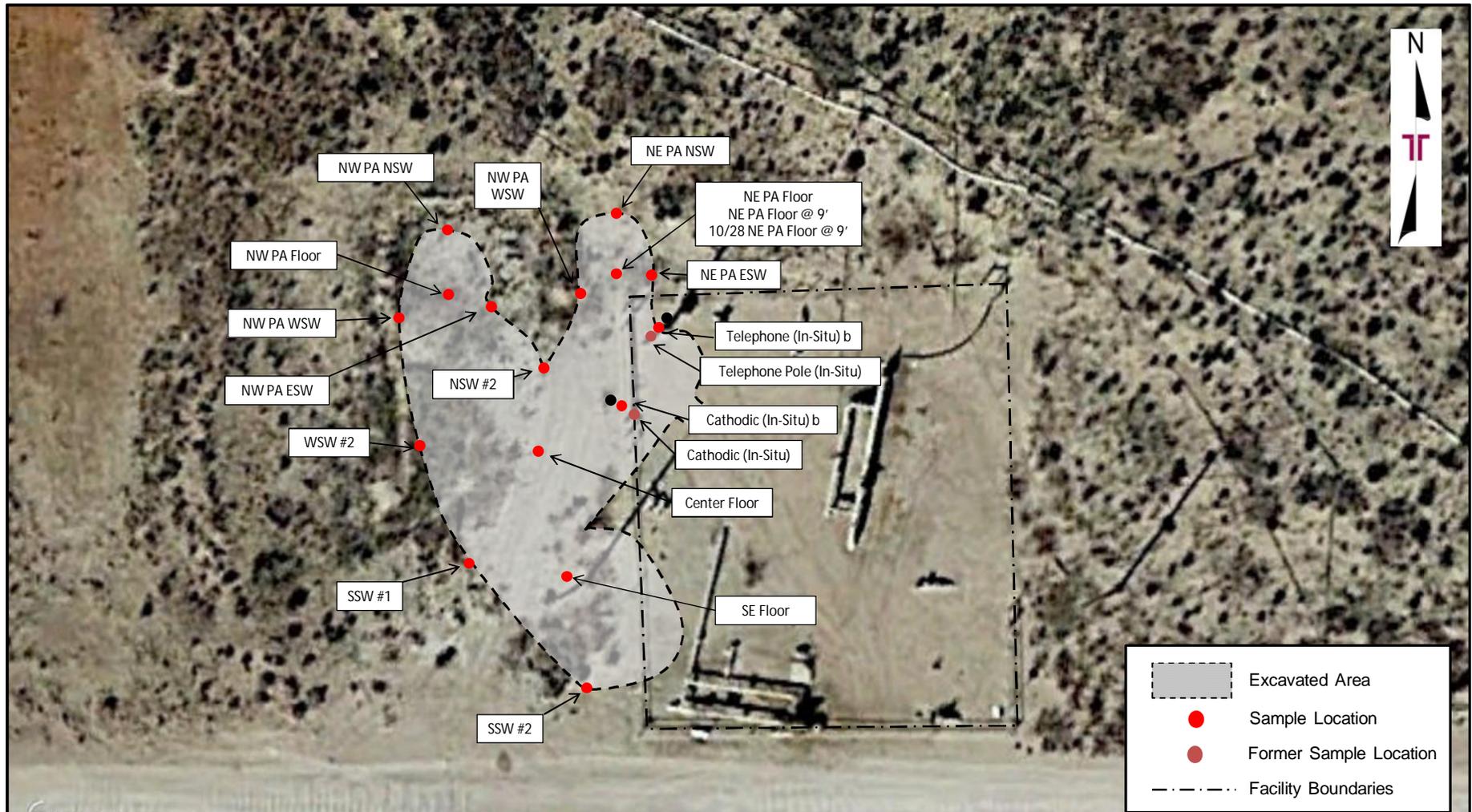


Project No.	AR157452
Scale:	1"~2,400'
Source:	BLM New Mexico
Date:	2015

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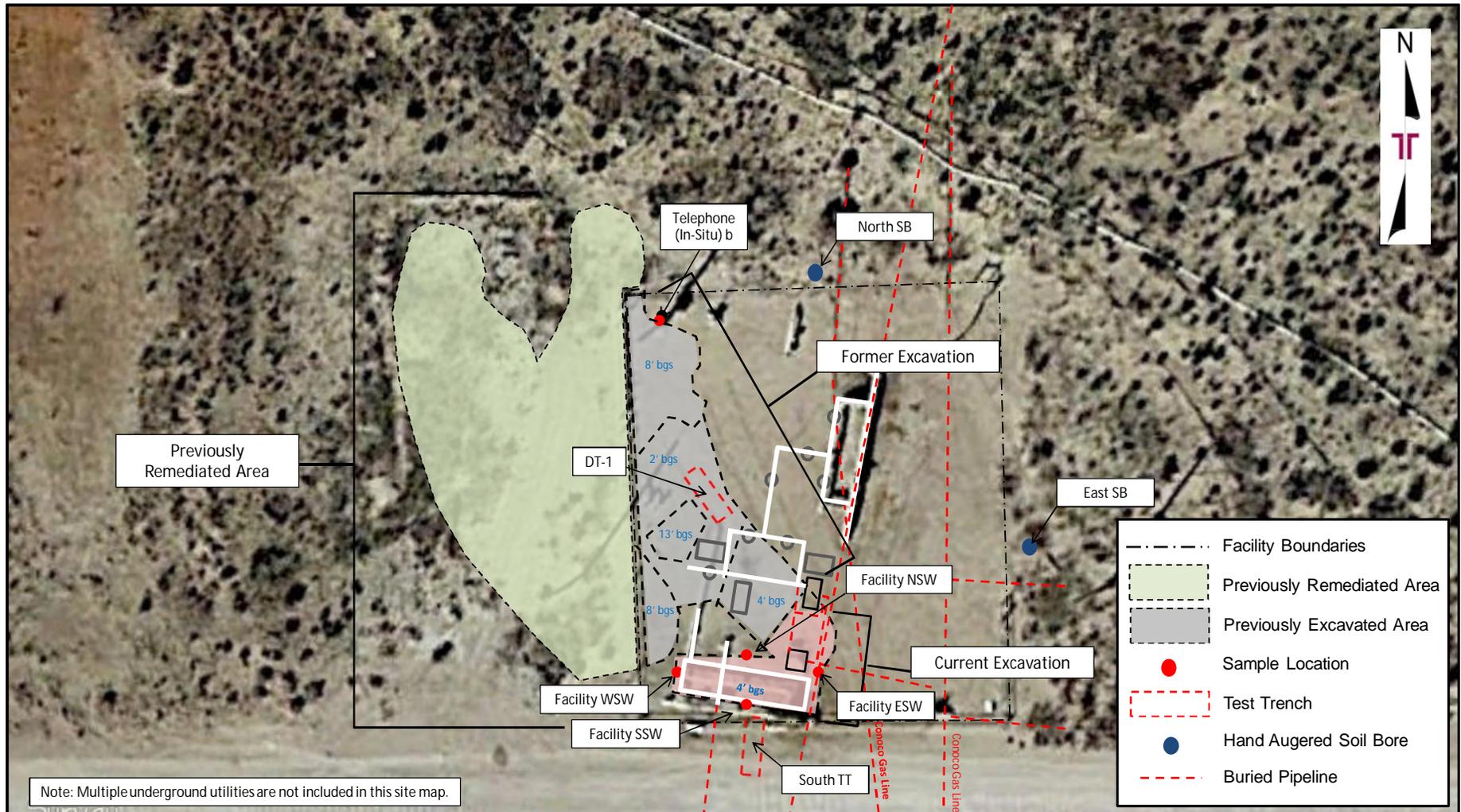
Figure 1 – Site Location Map
 New McKee Junction Sump
 32.54213° , -103.17194°
 Lea County, New Mexico



Project No.	AR157452
Scale:	1" = ~40'
Source:	Google Earth
Date:	2015

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Figure 2 – Site and Sample Location Map - Pasture
 New McKee Jct. Sump
 32.54213 ° , -103.17194 °
 Lea County, New Mexico



Project No.	AR157452
Scale:	1" = ~40'
Source:	Google Earth
Date:	2015

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Figure 3 – Site and Sample Location Map - Facility

New McKee Jct. Historical
 32.54213 ° N, -103.17194 ° W
 Lea County, New Mexico

Table 1
Confirmation Soil Sample Analytical Results - TPH¹, BTEX² and Chloride³
New McKee Junction Historical
 Plains All American Pipeline, L.P.
 Latitude: 32.54213°, Longitude: -103.17194°
 Terracon Project No. AR157468

Sample ID	Depth	Date	Sample Type	Soil Status	TPH				Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
					C ₆ -C ₁₂ (mg/kg)	C ₁₂ -C ₂₈ (mg/kg)	C ₂₈ -C ₃₅ (mg/kg)	C ₆ -C ₃₅ (mg/kg)						
RP	1'	9/2/2015	Grab	In-Situ	-	-	-	-	-	-	-	-	-	7.99
NE PA NSW	6'	9/4/2015	Grab	In-Situ	<15.0	58.5	<15.0	58.5	<0.00498	<0.00996	<0.00498	<0.00996	<0.00996	-
NE PA ESW	6'	9/4/2015	Grab	In-Situ	<15.0	<15.0	<15.0	<15.0	<0.000998	<0.00200	<0.000998	<0.00200	<0.00200	-
NE PA WSW	6'	9/4/2015	Grab	In-Situ	<15.0	<15.0	<15.0	<15.0	<0.00100	<0.00200	<0.00100	<0.00200	<0.00200	-
NW PA NSW	5'	9/4/2015	Grab	In-Situ	<15.0	<15.0	<15.0	<15.0	<0.000992	<0.00198	<0.000992	<0.00198	<0.00198	-
NW PA ESW	5'	9/4/2015	Grab	In-Situ	<15.0	<15.0	<15.0	<15.0	<0.00100	<0.00200	<0.00100	<0.00200	<0.00200	-
NW PA WSW	5'	9/4/2015	Grab	In-Situ	<15.0	<15.0	<15.0	<15.0	<0.000996	<0.00199	<0.000996	<0.00199	<0.00199	-
NE PA Floor	7'	10/2/2015	Grab	Excavated	<15.0	303	<15.0	303	<0.000994	<0.00199	<0.000994	<0.00199	<0.00199	-
NW PA Floor	6'	10/2/2015	Grab	In-Situ	<14.9	<14.9	<14.9	<14.9	<0.000994	<0.00199	<0.000994	<0.00199	<0.00199	-
SSW #1	5'	10/12/2015	Grab	In-Situ	<15.0	<15.0	<15.0	<15.0	<0.000994	<0.00199	<0.000994	<0.00199	<0.00199	-
SSW #2	5'	10/12/2015	Grab	In-Situ	<15.0	<15.0	<15.0	<15.0	<0.00166	<0.00332	<0.00166	<0.00332	<0.00332	-
WSW #2	5'	10/12/2015	Grab	In-Situ	<15.0	<15.0	<15.0	<15.0	<0.000998	<0.00200	<0.000998	<0.00200	<0.00200	-
NSW #3	5'	10/12/2015	Grab	In-Situ	<15.0	<15.0	<15.0	<15.0	<0.000990	<0.00198	<0.000990	<0.00198	<0.00198	-
Center Floor	7'	10/12/2015	Grab	In-Situ	<15.0	<15.0	<15.0	<15.0	<0.00198	<0.00397	<0.00198	<0.00397	<0.00397	-
SE Floor	7'	10/12/2015	Grab	In-Situ	<15.0	<15.0	<15.0	<15.0	<0.000992	<0.00198	<0.000992	<0.00198	<0.00198	-
NE PA Floor	8'	10/12/2015	Grab	Excavated	<15.0	137	<15.0	137	<0.00164	<0.00328	<0.00164	<0.00328	<0.00328	-
Telephone Pole (In-Situ)	5'	10/12/2015	Grab	Excavated	981	12,400	180	13,600	0.112	4.66	7.08	20.5	32.4	-
Cathodic (In-Situ)	5'	10/12/2015	Grab	Excavated	3,540	17,100	194	20,800	3.29	39.5	35.2	92.6	171	-
NE PA @ 9'	9'	10/16/2015	Grab	In-Situ	<15.0	<15.0	<15.0	<15.0	<0.000996	<0.00199	<0.000996	<0.00199	<0.00199	-
10/28 NE PA @ 9'	9'	10/28/2015	Grab	In-Situ	<15.0	<15.0	<15.0	-	-	-	-	-	-	-
DT-1	10.5-11'	12/10/2015	Grab	In-Situ	1,040	2,530	<15.0	3,570	0.562	1.4	12.6	17.3	31.9	-
DT-1	12.5-13'	12/10/2015	Grab	In-Situ	1,380	3,420	<14.9	4,800	0.284	0.723	19	26.3	46.3	-
DT-1	15.5-16'	12/10/2015	Grab	In-Situ	<15.0	135	<15.0	135	<0.00167	<0.00333	0.00405	0.0111	0.0152	-
DT-1	17.5-18'	12/10/2015	Grab	In-Situ	<15.0	<15.0	<15.0	<15.0	<0.00101	<0.00202	<0.00101	<0.00202	<0.00202	-
Telephone (In-Situ) b	7'	12/10/2015	Grab	In-Situ	19.8	20.8	<15.0	40.6	<0.000994	0.0109	0.0442	0.381	0.162	-
Cathodic (In-Situ) b	7'	12/10/2015	Grab	In-Situ	<15.0	41.2	<15.0	41.2	<0.000998	0.00200	0.000998	0.0259	0.0259	-
Facility NSW	2'	1/25/2016	Grab	In-Situ	<14.9	<14.9	<14.9	<14.9	<0.000994	<0.00199	<0.000994	<0.000994	<0.000994	-
Facility SSW	2'	1/25/2016	Grab	In-Situ	<15.0	<15.0	<15.0	<15.0	<0.00101	<0.00202	<0.00101	<0.00101	<0.00101	-
Facility ESW	2'	1/25/2016	Grab	In-Situ	<15.0	<15.0	<15.0	<15.0	<0.000994	<0.00199	<0.000994	<0.000994	<0.000994	-
Facility Floor	4-4.5'	1/25/2016	Grab	In-Situ	<14.9	38.5	<14.9	38.5	<0.00100	<0.00201	<0.00100	<0.00100	<0.00100	-
South TT	4.5-5'	1/25/2016	Grab	In-Situ	<15.0	<15.0	<15.0	<15.0	<0.00101	<0.00202	<0.00101	<0.00101	<0.00101	-
South TT	9.5-10'	1/25/2016	Grab	In-Situ	<15.0	<15.0	<15.0	<15.0	<0.00100	<0.00200	<0.00100	<0.00100	<0.00100	-
North SB	4.5-5'	1/25/2016	Grab	In-Situ	<15.0	<15.0	<15.0	<15.0	<0.00100	0.00392	<0.00100	0.00392	0.00784	-
North SB	9.5-10'	1/25/2016	Grab	In-Situ	<15.0	86.2	<15.0	86.2	<0.00100	<0.00309	<0.00100	<0.00100	<0.00309	-
East SB	4.5-5'	1/25/2016	Grab	In-Situ	<15.0	<15.0	<15.0	<15.0	<0.000998	<0.00200	<0.000998	<0.000998	<0.000998	-
East SB	9.5-10'	1/25/2016	Grab	In-Situ	<14.9	<14.9	<14.9	<14.9	<0.000998	<0.00200	<0.000998	<0.000998	<0.000998	-
New Mexico Oil Conservation Division Regulatory Remediation Action Levels								100	10				50	250*

1. TPH = Total petroleum hydrocarbons analyzed by EPA Method SW-846 8015M.

2. BTEX = BTEX analyzed by EPA Method SW-846 8021b.

3. Chlorides = Chlorides analyzed by EPA Method E 300.

- = Soil sample not analyzed for that constituent.

< = Constituent not detected above the indicated laboratory reporting limit (RL).

N/A = Not Applicable

* = Remediation Action Levels for chloride are not currently specified in the New Mexico Administrative Code and are set by the NMOCD on a site-specific basis.

Bold denotes concentrations that exceeds NMOCD Regulatory Remediation Action Levels

Photographic Log



PHOTO 1: View of surface staining from the initial release, facing northwest.



PHOTO 2: View of surface staining from the initial release, facing north.



PHOTO 3: View of excavation activities within the affected pasture, facing east.



PHOTO 4: View of hydroexcavation activities under facility piping, facing east.



PHOTO 5: View of the excavated area within the affected pasture, facing east.



PHOTO 6: View of portion of the excavated area within the facility before installation of new piping, facing southeast.



PHOTO 7: View of backfilling activities within the affected pasture, facing south.



PHOTO 8: View of excavation of affected soil adjacent to cathodic protection system, facing west.



PHOTO 9: View of the advancement of DT-1, facing northwest.



PHOTO 10: View of delineation activities, facing southwest.



PHOTO 11: View of portion of excavated area, facing northwest.



PHOTO 12: View of newly installed piping and valve settings, facing south.



PHOTO 13: View of portion of the excavated area within the facility, facing east.



PHOTO 14: View of portion of the excavated area within the facility, facing west.



PHOTO 15: View of delineation activities, facing south.